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Privacy under Construction: A Developmental Perspective on Privacy Perception

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Abstract

We present a developmental perspective regarding the difference in perceptions toward privacy between young and old. Here, we introduce the notion of privacy conceptions, that is, the specific ideas that individuals have regarding what privacy actually is. The differences in privacy concerns often found between young and old are postulated as the result of the differences found in their privacy conceptions, which are subsequently linked to their developmental life stages. The data presented have been obtained through a questionnaire distributed among adolescents, young adults, and adults and provide support for this developmental perspective. This study is one of the first to include adolescents when investigating the privacy concerns among young and old. The results show that the privacy conceptions held by adolescents indeed differ from those held by young adults and adults in keeping with the expectations as seen from a developmental perspective. In addition, the areas in which the differences in privacy conceptions are found

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also reflect the strongest relationship with concerns. As such, these findings present an alternative perspective to the commonly held notion that young people are less concerned about privacy.

Keywords
privacy attitude, privacy conceptions, developmental perspective, social needs, online information

Introduction

Young people are said to be less concerned with their privacy and to value their privacy less compared to older people (Nussbaum 2007; Palfrey and Gasser 2008). This view rests mainly on studies that show that young people share a great deal of information on social network sites (SNSs; Acquisti and Gross 2006; Debatin et al. 2009; Govani and Pashley 2005) and anecdotal reports in the media, which show how such disclosures can lead to personal misfortune (e.g., Ferenstein 2013; Levy 2009; O'Dell 2011). However, investigations of privacy concerns have provided mixed signals. Although a significant number of studies have reported that younger people are indeed less concerned with privacy than older individuals (Fox et al. 2000; Marketing-Charts 2009; Paine et al. 2007; Zukowski and Brown 2007), other studies instead have shown that young people are in fact concerned with privacy and do not differ from older people in terms of privacy concerns (e.g., Hoofnagle et al. 2010; Madden and Smith 2010; Tufekci 2012). Moreover, with one[1] exception, all of these studies have only included respondents eighteen years old and older, and have provided no information on the privacy concern felt by adolescents, whereas adolescents are intensive users of social media such as SNSs (Lenhart et al. 2010; Steijn 2014).

In this article, we investigate the differences in privacy concerns between young and old, including respondents younger than eighteen years old. We argue that both the informational liberality of youth and the allegedly lesser privacy concerns can be explained by more subtle reasons than the belief that the youth no longer value privacy. For legislators and policy makers, as well as for Internet entrepreneurs, it is important to understand these reasons.

Concerning our focus on privacy concerns, we note that looking at the privacy concerns held by individuals only addresses the affective aspect of their attitudes about privacy and ignores the cognitive aspect (e.g., beliefs). Yet both should be considered to fully understand the attitude held

by individuals (Eagly, Mladinic, and Otto 1994). For example, the attitude a person holds with regard to a particular group of people is not only determined by how he or she feels about that group but also for some part by the beliefs that person has concerning that group (e.g., by specific stereotypes). The cognitive beliefs can influence the affect felt and vice versa (Eagly, Mladinic, and Otto 1994; Kaplan 1991). In other words, to assess and interpret the held attitude of individuals concerning privacy, not only the affective part should be considered (i.e., how concerned they are with privacy) but also the cognitive aspect, that is, an individual's specific idea concerning what privacy exactly is. In the remainder of this article, we will refer to the latter as an individual's privacy conceptions.

One important problem in the current privacy debate that obstructs a clear view of children's and youth's vulnerability regarding privacy is that it is generally assumed that all individuals, old and young, share exactly the same idea about what privacy actually is. Against the background of the ubiquitous Internet and the increasing popularity of SNSs and mobile devices, the privacy debate is currently focused on the information that is easily shared on the Internet and on the data that are being gathered through new (mobile) technologies. Risks related to data mining (Andrews 2012) and identity theft (Noda 2009; Timmer 2009) as well as adverse side effects of sharing information online have received much attention in scholarly and public debates. Such risks play a predominant role in regard to what privacy means for those who are actively involved in these debates, and who are aware of this through the media. But the people involved in these debates are almost exclusively adults, while younger people are absent. Equally unsurprising, these adults easily assume that anyone who uses the Internet should be concerned with precisely these very same privacy risks. As a consequence, the online behavior of youth—who appear unimpressed by data miners and identity thieves in their use of SNSs—is thought to reflect a lack of privacy concern. Findings showing young users of SNSs that disclose a great deal of personal information and at the same time are concerned about their privacy are often considered paradoxical (Acquisti and Gross 2006; Fogel and Nehmad 2009; van de Garde-Perik et al. 2008). The paradox unravels, however, as soon as one starts to take into consideration that there might be slight—but significant—differences in what adults think about when talking about privacy, on one hand, and what youth's specific ideas are regarding privacy, on the other.

We argue that youth's understanding of privacy differs from older people's understanding in such a way that similar situations, such as the sharing of information on SNSs, can result in different levels of concerns. We

hypothesize that this is related to the developmental differences between young and old. In order to substantiate this hypothesis, we first, provide some additional background to the notion of privacy and to our developmental perspective. Then, the exact research hypotheses will be formulated, followed by methodological considerations, research results, and discussion of the results.

Privacy Conceptions: The Importance of Context

Ever since the middle of the previous century, it has become fashionable to start theoretical contributions on privacy by mentioning a "conceptual chaos" surrounding the notion of privacy (Johnson 1989, 157; Nissenbaum 2010, 67; Parent 1983, 341; Prosser 1960). Upon further consideration, the alleged conceptual chaos is not that great. Vedder (2011) contends that over the years many aspects of the notion originally introduced and defined by Warren and Brandeis (1890) have been retained. Warren and Brandeis define privacy as a right of individuals to be protected from the unsolicited distribution of information regarding their private life, particularly via publications. According to them, private life concerns emotions, sensory experiences, feelings, thoughts, and dealings, and extends further to a diversity of aspects pertaining to life including personal relationships, writings, and statements (Warren and Brandeis 1890, 195).

A quick review of the theoretical debate on privacy since the end of the nineteenth century shows that although there are differences and changes of opinion concerning the exact definition and theoretical context of the notion, the core remains relatively stable. Generally, it makes sense to distinguish four dimensions of privacy that have been labeled differently by different authors. Burgoon, who introduced the idea of multidimensionality, refers to them as the physical, the social, the psychological, and the informational aspect (Burgoon 1982; Burgoon et al. 1989). In this article, we will instead follow Vedder (2011) and refer to them as the spatial, for example, the privacy of one's home; relational, for example, the privacy of intimate relationships; decisional, for example, the privacy of making one's own decisions regarding one's family life; and informational dimension, for example, the privacy of one's personal data and information.

Vedder argues that, over time, subtle shifts in the focus and emphasis of privacy theories take place, altering what is considered to be the predominant dimension of privacy, what are the values served by privacy, and how the notion is subsequently best defined. According to him, these shifts might be connected to the changes that take place in the general social

context of those who articulate the definitions. It seems to be typical of privacy's function that it offers protection to individuals against the risks perceived to come along with their accessibility in different respects. The perceived vulnerabilities[2] involved can transform as a result of technological developments, changes in socioeconomic relations, for example, blurring lines of demarcation between the private and the public sector, and changing conventions and traditions (Vedder 2001). The introduction of the personal computer in the late 1970s, for instance, inspired the tendency to define privacy more and more in terms of access to individuals through data and information rather than in terms of spatial access, interference with personal decisions, or relationships. While defining privacy in the latter terms has not disappeared, the emphasis on the informational aspect and the growing attention being paid to vulnerabilities coming along with personal data and information cannot be overlooked. Perceived vulnerabilities related to accessibility change with the context. As perceived vulnerabilities change, so do the emphasis and the focus of the scholarly definitions of privacy.

In this article, we investigate whether something similar may also be observed in regard to the specific articulations of the notion of privacy by different groups of individuals. We will refer to an individual's specific idea concerning what privacy is as their privacy conceptions.[3] In other words, when talking about an individual's privacy concerns, his or her privacy conceptions define what it is he or she is concerned about. Someone's perceived vulnerabilities affect one's privacy conceptions, which, in turn influences the concerns felt.

Thus far little attention has been paid to establishing the possible differences in privacy conceptions between individuals or groups of individuals. Instead, most studies addressing privacy have generally focused on the availability of personal information (e.g., Fox et al. 2000; Hoofnagle et al. 2010; Madden and Smith 2010; Zukowski and Brown 2007). Here we will investigate potential differences in privacy conceptions between young and old from a developmental perspective and the relationship between these privacy conceptions and reported concerns. We will distinguish between adolescents (twelve- to nineteen-year-olds), young adults (twenty- to thirty-year-olds), and adults (thirty-one-year-olds and older)[4].

We hypothesized that the focus on privacy conceptions held by groups of individuals may change as these individuals grow older and their perceived vulnerabilities change. Although the privacy conceptions of different groups may be basically very similar, specific aspects may be more prominent in the conceptions of one age-group than in those of another. By the same token, the focus and emphasis of the privacy conceptions of the old

may differ from those of the young, depending on the vulnerabilities they perceive. As a result, differences can be expected in the kinds of situations that individuals from different age-groups associate with privacy. In the following section, we will explore possible differences in perceived vulnerabilities between young and old from a developmental perspective, which in turn may cause them to have different privacy conceptions.

The Developmental Perspective

A developmental perspective is increasingly used to understand young people's behavior on SNSs (Christofides, Muise, and Desmarais 2012; Peter and Valkenburg 2011; Steijn 2014). To put it simply, a developmental perspective suggests that observed behavior online can be explained by the social needs and desires of a specific life phase. Young and old people exhibit different behavior as they gratify different social needs and make different trade-offs.

The online behavior of adolescents is remarkably similar to the ordinary style of socializing—sharing personal information and making friends—that youth has always exhibited in the school yard (Boyd 2008; Herring 2008; Marwick, Diaz, and Palfrey 2010). Several social goals have been identified as being particularly prominent during adolescence. Among these goals are the need for identity formation and the need for relationship formation (Boneva et al. 2006; Boyd 2008; Bukatko 2008; Marwick, Diaz, and Palfrey 2010; Mesch and Talmud 2010; Peter and Valkenburg 2011; Steinberg 2008). The Internet and specifically SNSs have become important social tools for young people (Ellison, Steinfield, and Lampe 2007; Lampe, Ellison, and Steinfield 2006; Wolak, Mitchell, and Finkelhor 2002). Adolescents establish their reputations and identities through these sites (Boneva et al. 2006; Boyd 2008; Marwick, Diaz, and Palfrey 2010; Valkenburg, Schouten, and Peter 2005). The opportunities that SNSs provide for identity experimentation and for getting in touch with potential new friends are important reasons why SNSs are popular among young people.

The developmental goals of adolescents are also important for the specific articulation of their privacy conceptions. As we argued earlier, adolescents' main interests are to interact and hang out with their friends, experiment with friendships, and experiment with their identity in seclusion from their parents and other grown-ups. Previous studies have shown that adolescents primarily seek privacy from known adults such as their parents and teachers (Boyd and Marwick 2011; Livingstone 2008). Here we will expand on this observation by arguing that the developmental goals of

adolescents result in a different focus in privacy conceptions—one in which adolescents' main vulnerability is to their parents' intrusions on their relationships with friends, while the risks of data mining or identity theft are less prominent. Adolescents may see the Internet and SNSs primarily as an opportunity to escape from the scrutiny of the parental supervision in their parental home and to obtain social gratification, rather than to view it as a privacy risk. This is different from adults for whom the informational threats posed by SNSs in the forms of observations and interference by banks, insurance companies, authorities, future employers and ill willing criminals are more prominent. These parties are expected to play an increasing role in the lives of young adults. During young adulthood, individuals often find jobs and move out of the parental home, and generally they become more self-sufficient and independent (Arnett 2000). In comparison, adolescents still live relatively sheltered lives in the parental home. They are therefore expected to have a privacy conception with a relatively stronger focus on relationships compared to adults, since relationship formation and experimentation with existing relationships are important tasks during adolescence.

These differences in the privacy conceptions could explain a difference in privacy concerns between young and old. The concerns with intrusions by authorities, business corporations, and criminals are often considered as privacy concerns tout court. Therefore, it would appear only natural that young people report to be less concerned with privacy because it is precisely these factors that do not yet play a prominent role in their privacy conceptions. This does not mean that adolescents are completely blind to privacy risks connected to data mining, profiling, and identity theft, nor is it so that adults do not care at all for relational privacy. We argue that one or the other will be more prominent in the conceptions of privacy of individuals in different developmental life phases.

Research Objectives

We expect that adolescents, young adults, and adults will display differences in their privacy conceptions that are related to their developmental life phase. The privacy conceptions will be assessed by looking at which situations individuals associate with privacy. The preselection of the situations from which the respondents could choose was originally inspired by the previously established multidimensionality of privacy (Burgoon 1982; Burgoon et al. 1989; Vedder 2011).

Technological developments have shifted the focus on privacy for adults to a large extent to personal information. Yet, the privacy risks which are typically related to this aspect, such as those associated with the data mining by banks, insurance companies, governmental authorities, and future employers or identity theft by ill willing individuals, are less likely to play an important role in the relatively sheltered lives of adolescents whose parents heed to these issues. With this in mind, we expect that more young adults and adults will associate privacy with situations involving information, such as sharing information on the Internet or data mining, than adolescents.

Hypothesis 1a: More young adults and adults will associate privacy with situations involving information than adolescents.

Adolescents, on the contrary, are expected to associate privacy with situations involving relationships, such as having multiple relationships or being able to be alone with a friend. Interacting with friends is an important social need during adolescence (Peter and Valkenburg 2011). Since adolescents often reside in their parental homes, they have to create situations in which they are secluded from their parents in order to be able to be alone with their friends. To represent these expectations, the following hypothesis was formulated:

Hypothesis 1b: More adolescents will associate privacy with situations involving relationships than young adults and adults.

In addition, we expect to find a relationship between the privacy conceptions of individuals and their privacy concerns. The Internet is primarily a cause for informational privacy concerns due to the associated risks of, for example, data mining and identity theft (Andrews 2012; Noda 2009; Timmer 2009). We therefore expect that situations involving personal information, such as the sharing of information or data mining, will have the strongest relationship with concerns. As a result, adolescents are expected to report that they experience less concern when compared to young adults and adults. We expect no differences in concerns between both young adults and adults as their privacy conceptions include situations involving information more often. These expectations are represented in the following hypotheses:

Hypothesis 2: Privacy concerns will be more closely related to situations involving information when compared to situations involving relationships.

Table 1. Sample Demographic.

	N	Age	Gender (Male, %)
Total	1,002	28.77 (15.52)	39.9
Adolescents	372	14.60 (2.16)	47.0
Young adults	277	25.55 (3.10)	28.9
Adults	353	46.22 (12.12)	41.1

Note: Age provides means with standard deviation in brackets.

Hypothesis 3: Adolescents will report less privacy concerns than young adults and adults.

Method

Procedure

An online survey was conducted in the Netherlands by the research institute TNS-NIPO, which allowed respondents to participate from their own computers at home. Respondents were recruited through a stratified sampling procedure. From July 19 until August 4, 2011, 1,008 respondents who had profiles on an SNS completed the questionnaire. Respondents gave their consent to participate in the research survey (parents provided consent for individuals younger than eighteen years of age) and upon completion of the questionnaire they received special points, which respondents could trade for discount coupons.

Sample

Six respondents were removed from the sample as they explicitly stated that they had created their profiles merely for a different purpose (e.g., as requirement for using another site). Of the remaining 1,002 respondents, 125 (12.5 percent) have a profile only on Facebook, 365 (36.4 percent) have a profile only on Hyves, and 512 (51.1percent) have a profile on both SNSs. Table 1 provides an overview of the distribution of respondents over the age-groups adolescents (twelve- to nineteen-year-olds), young adults (twenty- to thirty-year-olds), and adults (thirty-one-year-olds and older) and their age and gender.

Measures

Privacy concerns. In order to assess how concerned individuals are with their privacy, they were asked whether they were concerned about their privacy,

feel they have too little privacy, and consider the Internet as a threat to their privacy. Ratings were made on a four-point Likert scale from *completely disagree* (1) to *completely agree* (4). See Table A1 in the Appendix for an overview of the used items. Respondents generally considered the Internet a threat to privacy ($M = 2.94$, $SD = .77$), but were generally not very concerned ($M = 2.23$, $SD = .87$) nor felt to have too little privacy ($M = 2.08$, $SD = .77$). Reliability analysis provided an acceptable score ($\alpha = .750$) for the three items to be combined into a single *privacy concerns* scale ($M = 2.42$, $SD = .66$). For this scale, higher scores indicate more privacy concerns in the form of feeling more concerned about privacy, having too little privacy, and believing the Internet to be more of a threat to their privacy.

Privacy conceptions. Respondents were asked which of the situations they associated with privacy by answering simple yes–no questions. The situations were based on the spatial, relational, decisional, and informational dimension previously distinguished (Vedder 2011). While the hypotheses only addressed the informational and relational dimensions, situations were also included for addressing the spatial and decisional dimension for further exploration. The situations involving relationships were *alone partner* (being able to be alone with partner or (girl)friend) and *various relationships* (being able to maintain different friendships and relations). The situations involving information were *data collection* (the government collecting information about me) and *information sharing* (putting information on the Internet). The situations involving spatial issues were *burglary* (when someone breaks into my house) and *cameras* (camera surveillance in a shopping mall). Finally, the situations involving decisions were *voting* (being able to vote for political parties) and *freedom of choice* (being able to determine what you do and buy). See Appendix Table A2 for an overview. The association between the situations and privacy dimensions was based on deductive reasoning.

Results

Privacy Conceptions

We investigated the situations respondents reported that they thought were associated with privacy in order to gain insight into their privacy conceptions and the hypothesized differences. Table 2 gives an overview of the percentage of respondents from each age-group which reported that they

Table 2. Situations Associated with Privacy by Respondents.

Situations		Adolescents	Young Adults	Adults	Total	$\chi^2(df\ 2)$
	n	372	277	353	1,002	
Relational	Alone partner	69.1%	71.1%	60.1%	66.5%	10.343**
	Ad. res.	1.3	1.9	−3.2		
	Various relationships	38.4%	37.2%	34.3%	36.6%	n.s.
	Ad. res.	0.9	0.2	−1.1		
Informational	Data collection	55.9%	70.4%	72.5%	65.8%	25.832***
	Ad. res.	−5.1	1.9	3.3		
	Information sharing	61,0%	69.7%	67.7%	65.8%	6.189*
	Ad. res.	−2.4	1.6	1,0		
Spatial	Burglary	66.1%	79.1%	79.9%	74.6%	22.175***
	Ad. res.	−4.7	2,0	2.9		
	Cameras	42.7%	46.6%	46.7%	45.2%	n.s.
	Ad. res.	−1.2	0.5	0.7		
Decisional	Voting	22.8%	37.5%	42.5%	36.0%	15.196**
	Ad. res.	−3.7	0.6	3.1		
	Freedom of choice	53.5%	61.7%	57.5%	57.2%	n.s.
	Ad. res.	−1.8	1.8	0.2		

Note: χ^2 statistic significant at *$p < .05$ level. **$p < .01$ level. ***$p < .001$ level. Ad. res. = adjusted standardized residual; n.s. = not significant. A residual with an absolute value of 2.0 or higher indicates a significant deviation from the total percentage.

associated a specific situation with privacy. *Burglary* was associated with privacy by most respondents, whereas *voting* and *various relationships* were chosen the least by the respondents. Adolescents generally associated fewer situations ($M = 4.16$, $SD = 1.94$) with privacy than both young adults ($M = 4.73$, $SD = 2.06$) and adults ($M = 4.61$, $SD = 2.02$), $F(2, 999) = 7.822$, $p < .001$, $\eta^2 = .02$.

χ^2 tests were used to test differences between the age-groups. A significant age effect was found for the situations *alone partner*, $\chi^2(2, 1{,}002) = 10.34$, $p = .006$, $V = .10$; *data collection*, $\chi^2(2, 1{,}002) = 25.83$, $p < .001$, $V = .16$; *information sharing*, $\chi^2(2, 1{,}002) = 6.19$, $p = .045$, $V = .08$; *burglary*, $\chi^2(2, 1002) = 22.17$, $p < .001$, $V = .15$; and *voting*, $\chi^2(2, 1002) = 15.20$, $p = .001$, $V = .12$. Investigation of the adjusted standardized residuals shows that, compared to the total percentage, significantly fewer adolescents associated *data collection*, *information sharing*, *burglary*, and

voting with privacy. *Burglary* was associated with privacy by both more young adults and adults compared to the total percentage. Furthermore, significantly more adults associated *data collection* and *voting* with privacy, whereas significantly fewer adults associated *alone partner* with privacy when compared with the total percentage.

The results presented in Table 2 support the first two hypotheses, albeit the effect size for all differences is small. Fewer adolescents associated situations involving information with privacy compared to young adults and adults. However, only adults were less likely to associate situations involving relationships with privacy compared to adolescents. Young adults were just as likely as adolescents to associate these situations with privacy. For *various relationships*, this relationship is not statistically significant, but a similar trend is visible in the variable *alone partner*, where this effect is significant. The data therefore only provide partial support for Hypothesis 2b.

Relationship between Concerns and Conceptions

Next, we investigated the second hypothesis whether privacy concerns is more closely related to situations involving information when compared to situations involving relationships. This was done through Pearson correlation (two-tailed) analyses. Appendix Table A3 provides an overview of all correlations between the conception situations and privacy concerns; however, here we will focus only on the correlations of the conception situations relevant to our hypothesis, that is, *alone partner*, *various relationships*, *data collection*, and *information sharing*.

Concerning the situations involving relationships, we found no significant correlation between *alone partner* and *privacy concerns* ($r = -.01$, $p = .861$), and a barely significant correlation between *various relationships* and *privacy concerns* ($r = .08$, $p = .015$). Concerning the situations involving information, we found a significant correlation between *privacy concerns* and both *data collection* ($r = .14$, $p < .001$), and *information sharing* ($r = .14$, $p < .001$). Fisher's r to z transformations showed partial support of the hypothesis, the correlations between the informational situations and privacy concerns ($r = .14$) were significantly greater than the correlation between the *alone partner* and *privacy concerns* ($z = 3.37$, $p < .001$), but not significantly greater than the correlation between *various relationships* and *privacy concerns* ($z = 1.36$, $p = .087$). This provides partial support that privacy concern has a greater relationship with the situations involving information than with the situations involving relationships.

Finally, we hypothesized that the differences in privacy conceptions between adolescents, young adults, and adults would also be reflected in their concerns, that is, adolescents were expected to report less concern. A one-way analysis of variance showed a small but significant age effect indicating that adolescents', young adults' and adults' privacy concerns differed from each other, $F(2, 999) = 22.12$, $p < .001$, $\eta^2 = .04$. A post-hoc comparison of the three age-groups showed that adolescents reported less concern ($M = 2.24$, $SD = .63$) than young adults ($M = 2.55$, $SD = .60$; $p < .001$) and adults ($M = 2.49$, $SD = 0.70$; $p < .001$). The latter two groups did not differ from each other significantly. This supports the third hypothesis which states that adolescents are less concerned about their privacy compared to young adults and adults.

Discussion

The goal of this article was to gain better insight into the privacy conceptions and privacy concerns of both young and old. Replicating previous findings, we showed that younger people report less privacy concerns compared to older people. However, we also provided an explanation for these differences in concerns between young and old: adolescents associate privacy more with relationships, whereas young adults and adults are more likely to associate privacy with data collection by the government, profiling, and identity theft. These differences match with what can be expected from a developmental perspective. The lower privacy concerns reported by adolescents are therefore perfectly understandable as a property of growth rather than being characteristics of a generation that now and in the future will no longer care about privacy, Young people may simply hold different conceptions of privacy related to their developmental life stage and social needs: conceptions that entails less cause for concern.

As was hypothesized, more adolescents associated the situation involving relationships, that is, being able to be alone with a friend or partner, but fewer adolescents associated privacy with situations involving information—such as data mining by governments. Although the effect sizes for these findings were small, these findings indicate that differences in the privacy conceptions exist between younger and older individuals; younger individuals' privacy conceptions have a stronger focus on situations involving relationships. This aligns with the need of adolescents to pursue new friendships and to hang out with friends preferably out of reach of the known adults that still control large aspects of their lives (Boyd and

Marwick 2011). For young people, the Internet and social media may actually provide privacy from parents and other known adults. This is more relevant for them than the more abstract risks of data mining and identity theft often associated with sharing information online and which are a cause of concern for adults.

This perspective offers salient and fresh insights concerning the online behavior displayed by young people. For example, whereas there is a trend in which an increasing number of adults are using SNSs (Hampton et al. 2011), the first reports have appeared which claim that youth are becoming tired of Facebook (Crook 2013). The results presented suggest a possible relationship between these events. SNSs are important to the privacy of adolescents and young adults because they allow them to create a private space away from their parents at home (Boyd and Marwick 2011). As a result, if an increasing number of adults and parents are indeed making their way to SNSs such as Facebook, the popularity of these sites can be expected to drop among young people. The sites will no longer provide the privacy that young people seek.

Whereas prominent differences were found in the privacy conceptions of adolescents and adults, young adults' privacy conceptions shared elements with those of adolescents and those of adults. Young adulthood represents a heterogeneous age-group due to many societal changes that take place during this phase (Arnett 2000). Most importantly, they make the transition from the sheltered adolescent life toward becoming self-sufficient and independent adults: they find employment, move out of their parental homes, and perhaps even marry. The results here support this view of young adulthood as a transitory phase. Their privacy conceptions contained both the elements associated with adolescents' conceptions and those associated with adults' conceptions. In keeping with previous findings (Hoofnagle et al. 2010; Madden and Smith 2010), we also found that young adults report similar privacy concerns as adults.

Although not included in the hypotheses, the differences found between young and old regarding the situations involving spatial issues and decisions further support a connection between the differences in conceptions with the developmental phase. The greatest differences concerning the association of situations with privacy were found to exist between adolescents and adults for the decisional situation *voting* (Δ19.7 percent) and the spatial situation *burglary* (Δ13.6 percent). Only the difference between adolescents and adults for *data collection*

representing personal information was of a similar size (Δ16.8 percent). Since most adolescents are neither a homeowner nor allowed to vote, the differences for *burglary* and *voting* are easy to grasp. These situations have not yet become part of adolescent life and therefore they do not figure prominently in adolescents' reasoning. However, this also suggests that a similar argument could be made for the situation *data collection*. The threat of data collection by the government can be considered less prominent during adolescence since important potential intruders of privacy, such as employers, banks, or governments do not yet play important roles in their lives. Instead, the youth need to constantly manage their privacy in relation to their parents in their parental homes and with regard to other known others in their relatively confined habitat of youngsters. This focus in privacy conceptions disappears from the age of nineteen onward. Adults spend less time with friends (Hartup and Stevens 1999; Blieszner and Roberto 2004) and since they are homeowners and financially more independent than young people, adults can be expected to have entirely different concerns compared to adolescents (e.g., burglary).

The results show that the situations involving information, such as data collection by the government, had stronger relationships with privacy concerns than the situation involving relationship concerning the ability to be alone. This result provides further insight into the often reported privacy paradox. The paradox consists of young users disclosing great amounts of information on SNSs and simultaneously reporting to be concerned about their privacy (Acquisti and Gross 2006; Fogel and Nehmad 2009; van de Garde-Perik et al. 2008), albeit still less concerned than adults. This would only be inconsistent if youth would hold privacy conceptions in which data mining by authorities and business corporations, or identity theft by criminals played a prominent role similar to adults. The results here have shown this not to be the case.

Limitations and Recommendations

An important consideration in this article is that individuals' privacy conceptions and in turn their privacy concerns are related to their developmental life phase. An implication of using a developmental perspective is that the reported privacy conceptions are a transient phenomenon for the individuals involved, meaning that, in the end, as they become older, those who were once young may change their ideas of what privacy is. This suggests that differences in privacy conceptions and

concerns as reported here have always existed and that they will probably continue to exist. In other words, the Internet and social media did not cause this difference in privacy conceptions nor did they necessarily cause the alleged drop in concerns among youth. Instead, the Internet and social media may have highlighted the already existing differences between young and old.

However, based on the data presented this contention remains speculative; it would require longitudinal data to verify these claims. The data presented show differences in the privacy conceptions of adolescents, young adults, and adults that appear related to developmental differences between young and old, but it cannot exclude possible alternative explanations, for instance, that the informational aspect of privacy has become less prominent for adolescents of today as a new generation. A longitudinal setup will allow an effective investigation of whether privacy conceptions indeed develop as individuals grow older, or whether they are fixed personal characteristics and identify potential infliction points (e.g., when the individual leaves the parental home). Such a setup might also verify the causality between privacy conceptions and concerns implied here. We have shown evidence of a relationship between conceptions and concerns and the plausibility of a developmental perspective to understand the differences between young and old. However, additional research will be required to investigate this issue even further.

Second, a limitation of the current study is that only Dutch respondents who make use of an SNS were used. Although, a sizable portion of the Dutch population and the population in general, makes use of SNSs, it is possible that the results reported here cannot be generalized to the population that does not make use of SNSs. Furthermore, it would be interesting to see if similar results would be obtained in a non-Dutch sample.

Third, most findings reported in this study have small effect sizes which may limit the direct relevance of the current findings. These small effect sizes could be a result of the items used to measure privacy conceptions. This study is the first to measure the privacy conceptions of individuals based on the four dimensions distinguished in privacy theories: *spatial, relational, decisional*, and *informational* (Vedder 2011). Only two items were used for each dimension, and although the items used have strong face validity, no further validation of the items was done. Considering the significance of the results presented here, future studies are invited to improve and develop the privacy conceptions scales so as to measure the privacy conceptions of individuals more effectively. This could result in larger effect sizes, or prove that the reported differences are subtle in nature.

Conclusion

Today, society is in a crucial stage of the debate on online privacy policies. Arguments drawing on the allegedly reduced appreciation of privacy by youth can have important implications for the development of future policies. The development of future technologies based on the assumption that privacy is appreciated less could lead to technologies that leave even less room for individuals to create the privacy they desire. It is therefore important to have an exact understanding of individuals' appreciation for privacy and the relationship to their online behavior, if not for the young people today, then for the young people of the future.

In this study, we have introduced the necessity to consider the cognitive as well as the affective aspect of an attitude to assess individual's attitudes about privacy. Thus far, studies mainly focused on the affective aspect only reporting the privacy concerns of individuals and interpreting them in the current information technology society. We have shown that young individuals do not necessarily share the same cognitions concerning privacy as adults do, that is, conceptions focused on the informational aspect of privacy. We do not provide conclusive evidence, but we do show that is plausible that a developmental perspective can be used to help understand the differences in privacy conceptions and subsequently the differences in concern between young and old. Based on the findings reported here, we hypothesize that once today's young people will grow older, they might become more careful with regard to their online data.

Appendix

Table A1. Privacy Concern Items: Please Indicate to What Degree You Agree or Disagree with the Following Statements Concerning Privacy in General.

Items	Mean	*SD*
I am worried about my privacy	2.23	.87
I feel that I have too little privacy	2.08	.77
The Internet is a threat for privacy	2.94	.77

Note: Items were presented in random order. Response scale ranged from (1) *completely disagree*; (2) *somewhat disagree*; (3) *somewhat agree*; to (4) *completely agree*.

Table A2. Privacy Conception Items: Please Indicate Which of the Following Situations Are Related to Privacy According to You.

Items	Selected (%)
Being able to be alone with partner or girlfriend	66.5
Being able to maintain different friendships and relations	65.8
The government collecting information about me	57.2
Putting information on the Internet	74.6
When someone breaks into my house	36.0
Camera surveillance in a shopping mall	65.8
Being able to vote for political parties	45.2
Being able to determine what you do and buy	36.6

Note: Items were presented in random order. Response scale was a dichotomous yes or no.

Table A3. Correlation Scores between Privacy Concern and the Privacy Conception Scales.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Privacy concern	—								
2. Alone partner	−.01	—							
3. Various relationships	.08*	.34***	—						
4. Data collection	.14***	.07*	.10**	—					
5. Information Sharing	.14***	.09**	.16***	.23***	—				
6. Burglary	.06	.13***	.13***	.23***	.14***	—			
7. Cameras	.11***	.09**	.17***	.37***	.21***	.14***	—		
8. Voting	.15***	.23***	.33***	.25***	.11**	.16***	.20***	—	
9. Freedom of choice	.00	.29***	.32***	.00	.03	.09**	.02	.31***	—

Note: The numbers labeling the columns refer to the variables presented in the rows.

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Notes

1. Paine and colleagues did include 168 respondents that were twenty years old or younger. However, it is unclear how many respondents were younger than eighteen.
2. Vulnerabilities refer to being liable to economical, physical, and emotional harm (e.g., feelings of embarrassment), harm to status and reputation, as well as to restrictions on freedom and autonomy.
3. We follow Gallie (1955-1956) in distinguishing concepts (definitions as theoretical constructions) from conceptions (personal views of definitions).
4. We recognize that privacy conceptions and concerns can differ within age-groups as the result of individual differences. For example, individuals can be privacy fundamentalists, privacy unconcerned, or privacy pragmatics (Westin 2003). Here, however, our focus is on establishing the potential differences between age-groups, setting individual differences aside for the moment.

References

Acquisti, A., and R. Gross. 2006. "Imagined Communities: Awareness, Information Sharing, and Privacy on the Facebook." 6th Workshop on Privacy Enhancing Technologies, Cambridge, UK.

Andrews, L. 2012. "Facebook Is Using You." *The New York Times*. Accessed July 5, 2012. http://www.nytimes.com.

Arnett, J. J. 2000. "Emerging Adulthood: A Theory of Development from the Late Teens through Twenties." *American Psychologist* 55 (5): 469-80.

Blieszner, R., and K. A. Roberto. 2004. "Friendship across the Life Span: Reciprocity in Individual and Relationship Development." In *Growing Together: Personal Relationships across the Lifespan*, edited by F. R. Lang and K. L. Fingerman, 159-82. Cambridge, UK: Cambridge University Press.

Boneva, B. S., A. Quinn, R. E. Kraut, S. Kiesler, and I. Shklovski. 2006. "Teenage Communication in the Instant Messaging Era." In *Computers, Phones, and the Internet: Domesticating Information Technology*, edited by R. Kraut, M. Brynin, and S. Kiesler, 201-18. Oxford, UK: Oxford University Press.

Boyd, D. M. 2008. "Taken out of Context: American Teen Sociality in Networked Publics Publics." Doctoral dissertation, University of California, Berkeley. Accessed July 13, 2010. http://www.danah.org/papers/TakenOutOfContext.pdf.

Boyd, D. M., and A. E. Marwick. 2011. "Social Privacy in Networked Publics: Teens' Attitudes, Practices, and Strategies." *A Decade in Internet Time: Symposium on the Dynamics of the Internet and Society*. Accessed November 18, 2011. http://ssrn.com/abstract=1925128.

Bukatko, D. 2008. *Child and Adolescent Development*. Boston, MA: Houghton Mifflin.

Burgoon, J. K. 1982. "Privacy and Communication." In *Communication Yearbook* 6, edited by M. Burgoon, 206-88. Beverly Hills, CA: Sage.

Burgoon, J. K., R. Parrott, B. A. Le Poire, D. L. Kelley, J. B. Walther, and D. Perry. 1989. "Maintaining and Restoring Privacy through Communication in Different Types of Relationships." *Journal of Social and Personal Relationships* 6 (2): 131-58.

Christofides, E., A. Muise, and S. Desmarais. 2012. "Hey Mom, What's on Your Facebook? Comparing Facebook Disclosure and Privacy in Adolescents and Adults." *Social Psychological and Personality Science* 3 (1): 48-54.

Crook, J. 2013. "Facebook Still Reigns Supreme with Teens, but Social Media Interest Dwindling." *Techcrunch*. Accessed April 11, 2013. http://techcrunch.com/2013/04/10/facebook-still-reigns-supreme-with-teens-but-social-media-interest-dwindling/.

Debatin, B., J. P. Lovejoy, A. Horn, and B. N. Hughes. 2009. "Facebook and Online Privacy: Attitudes, Behaviors, and Unintended Consequences." *Journal of Computer-Mediated Communication* 15 (1): 83-108.

Eagly, A. H., A. Mladinic, and S. Otto. 1994. "Cognitive and Affective Bases of Attitudes Toward Social Groups and Social Policies." *Journal of Experimental Social Psychology* 30 (2): 113-37.

Ellison, N. B., C. Steinfield, and C. Lampe. 2007. "The Benefits of Facebook "Friends": Social Capital and College Students' Use of Online Social Network Sites." *Journal of Computer-Mediated Communication* 12 (4): 1143-68.

Ferenstein, G. 2013. "Teen Brags on Facebook about Drunk Driving, Gets Arrested." *Techcrunch*. Accessed January 4, 2013. http://techcrunch.com/2013/01/03/teen-brags-on-facebook-about-drunk-driving-gets-arrested/.

Fogel, J., and E. Nehmad. 2009. "Internet Social Network Communities: Risk Taking, Trust, and Privacy Concerns." *Computers in Human Behavior* 25 (1): 153-60.

Fox, S., L. Rainie, J. Horrigan, A. Lenhart, T. Spooner, and C. Carter. 2000. *Trust and Privacy Online: Why Americans Want to Rewrite Rules*. The Pew Internet & American Life Project. Accessed October 23, 2013. http://www.pewinternet.org/~/media/Files/Reports/2000/PIP_Trust_Privacy_Report.pdf.pdf.

Gallie, W. B. 1955-1956. "Essentially Contested Concepts." *Proceedings of the Aristotelian Society* 56 (1): 167-98.

Govani, T., and H. Pashley. 2005. "Student Awareness of the Privacy Implications When Using Facebook." Unpublished manuscript. Accessed July 23, 2010. http://citeseerx.ist.psu.edu/viewdoc/download?doi=2010.2001.2001.2095.6108&rep=rep2001&type=pdf.

Hampton, K. N., L. S. Gourlet, L. Rainie, and K. Purcell. 2011. *Social Networking Sites and Our Lives*. Pew Internet & American Life Project report. Accessed May 2, 2012. http://www.pewinternet.org/Reports/2011/Technology-and-social-networks.aspx.

Hartup, W. W., and N. Stevens. 1999. "Friendships and Adaptation across the Life Span." *Current Directions in Psychological Science* 8 (3): 76-79.

Herring, S. C. 2008. "Questioning the Generational Divide: Technological Exoticism and Adult Constructions of Online Youth Identity." In *Youth, Identity, and Digital Media*, edited by D. Buckingham, 71-94. Cambridge, MA: MIT Press.

Hoofnagle, C., J. King, S. Li, and T. Turow. 2010. "How Different Are Young Adults from Older Adults When It Comes to Information Privacy Attitudes & Policies?" Accessed July 5, 2011. http://ssrn.com/abstract=1589864.

Johnson, J. L. 1989. "Privacy and the Judgements of Others." *The Journal of Value Inquiry* 23 (2): 157-68.

Kaplan, M. F. 1991. "The Joint Effects of Cognition and Affect on Social Judgement." In *Emotion and Social Judgements*, edited by J. P. Forgas, 73-82. Oxford, UK: Pergamon Press.

Lampe, C., N. B. Ellison, and C. Steinfield. 2006. "A Face(book) in the Crowd: Social Searching vs. Social Browsing." In *Proceedings of CSCW-2006*, 161-70. New York: ACM Press.

Lenhart, A., K. Purcell, A. Smith, and K. Zickuhr. 2010. *Social Media & Mobile Internet Use among Teens and Young Adults*. Pew Internet & American Life Project report. Accessed December 20, 2012. http://www.pewinternet.org/Reports/2010/Social-Media-and-Young-Adults.aspx.

Levy, A. 2009. "Teenage Office Worker Sacked for Moaning on Facebook about her 'Totally Boring' Job." *Dailymail*. Accessed January 3, 2013. http://www.dailymail.co.uk/news/article-1155971/Teenage-office-worker-sacked-moaning-Facebook-totally-boring-job.html.

Livingstone, S. 2008. "Taking Risky Opportunities in Youthful Content Creation: Teenagers' Use of Social Networking Sites for Intimacy, Privacy and Self-expression." *New Media & Society* 10 (3): 393-411.

Madden, M., and A. Smith. 2010. *Reputation Management and Social Media: How People Monitor their Identity and Search for Others Online*. Pew Internet & American Life Project report. Accessed September 15, 2011. http://www.pewinternet.org/Reports/2010/Reputation-Management.aspx.

Marketingcharts. 2009. "Online Privacy Worries Increase with Age." Last modified March 6, 2009. Accessed June 14, 2013. http://www.marketingcharts.com/wp/direct/online-privacy-worries-increase-with-age-8229/.

Marwick, A. E., D. M. Diaz, and J. Palfrey. 2010. "Youth, Privacy and Reputation. Literature Review." Berkman Center Research Publication No. 2010-2015, Harvard Public Law Working Paper No. 2010-2029. Accessed April 3, 2013. http://ssrn.com/abstract=1588163.

Mesch, G. S., and I. Talmud. 2010. *Wired Youth. The Social World of Adolescence in the Informational Age*. New York: Routledge.

Nissenbaum, H. F. 2010. *Privacy in Context. Technology, Policy, and the Integrity of Social Life*. Stanford, CA: Stanford University Press.

Noda, T. S. 2009. "Facebook Still a Hotbed of Identity Theft, Study Claims." *PCWorld*. Accessed July 5, 2012. http://www.pcworld.com.

Nussbaum, E. 2007. "The Kids, the Internet, and the End of Privacy: The Greatest Generation Gap Since Rock and Roll." *New York*. Accessed November 14, 2011. http://nymag.com/news/features/27341/.

O'Dell, J. 2011. "Student Suspended for Calling Teacher Fat on Facebook." *Mashable*. Accessed November 13, 2011. http://mashable.com/2011/02/01/facebook-free-speech-high-school/.

Paine, C., U.-D. Reips, S. Stieger, A. Joinson, and T. Buchanan. 2007. "Internet Users' Perceptions of 'Privacy Concerns' and 'Privacy Actions'." *Human-Computer Studies* 65 (6): 526-36.

Palfrey, J., and U. Gasser. 2008. *Born Digital*. New York: Basic Books.

Parent, W. A. 1983. "Recent Work on the Concept of Privacy." *American Philosophical Quarterly* 20 (4): 341-55.

Peter, J., and P. Valkenburg. 2011. "Adolescents' Online Privacy: Toward a Developmental Perspective." In *Privacy Online*, edited by S. Trepte and L. Reinecke, 221-34. Heidelberg, Germany: Springer.

Prosser, W. L. 1960. "Privacy." *California Law Review* 48 (3): 383-423.

Steijn, W. M. P. 2014. "A Developmental Perspective Regarding the Behaviour of Adolescents, Young Adults, and Adults on Social Network Sites." *Cyberpsychology: Journal of Psychosocial Research on Cyberspace* 8 (2), article 1, doi: 10.5817/CP2014-2-5.

Steinberg, L. 2008. *Adolescence*. 8th ed. Boston, MA: MacGraw Hill.

Timmer, J. 2009. "New Algorithm Guesses SSNs Using Date and Place of Birth." *Arstechnica*. Accessed July 5, 2012. http://arstechnica.com.

Tufekci, Z. 2012. "Facebook, Youth and Privacy in Networked Publics." In *Proceedings of the Sixth International AAAI Conference on Weblogs and Social Media*, 338-45. Palo Alto, California: The AAI Press.

Valkenburg, P. M., A. P. Schouten, and J. Peter. 2005. "Adolescents' Identity Experiments on the Internet." *New Media & Society* 7 (3): 383-402.

van de Garde-Perik, E., P. Markopoulos, B. de Ruyter, B. Eggen, and W. IJsselstein. 2008. "Investigating Privacy Attitudes and Behavior in Relation to Personalization." *Social Science Computer Review* 26 (1): 20-43.

Vedder, A. 2001. "KDD, Privacy, Individuality and Fairness." In *Readings in Cyberethics*, edited by R. Spinello and H. Tavani, 404-12. Boston, MA: Jones and Bartlett Publishers.

Vedder, A. 2011. "Privacy 3.0." In *Innovating Government*, edited by S. van der Hof and M. M. Groothuis, 17-28. New York: Springer/Asser Press.

Warren, S. D., and L. D. Brandeis. 1890. "The Right to Privacy. The Implicit Made Explicit." In *Philosophical Dimensions of Privacy: An Anthology*, edited by F. D. Schoeman, 75-103. Cambridge, UK: Cambridge University Press.

Westin, A. F. 2003. "Social and Political Dimensions of Privacy." *Journal of Social Issues* 59 (2): 1-37.

Wolak, J., K. J. Mitchell, and D. Finkelhor. 2002. "Close Online Relationships in a National Sample of Adolescents." *Adolescence* 37 (147): 441-56.

Zukowski, T., and I. Brown. 2007. "Examining the Influence of Demographic Factors on Internet Users' Information Privacy Concerns." In *Proceedings of SAICSIT Conference*, 197-204. New York: ACM.

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